

1. (Amended) A propellant-free composition consisting of (A) a polypeptide, (B) one or more surfactant compounds which (i) have a consistency that permits them to be processed into primary particles having a diameter less than 10 microns, and (ii) enhance the systemic absorption of said polypeptide in the lower respiratory tract of a patient, and (C) optionally one or more non-hygroscopic additives, said composition being in the form of a dry powder suitable for inhalation from a dry powder inhaler device, wherein at least 50% of the total mass of (A) and (B) consists of primary particles having a diameter less than or equal to about 10 microns, and wherein each of the one or more surfactant compounds is selected from the group consisting of a salt of a fatty acid, bile salt or derivative thereof, single-chain phospholipid, double-chain phospholipid in which each chain of the double-chain phospholipid is eight or fewer carbon atoms in length, alkyl glycoside, cyclodextrin or derivative thereof, salt of a glycyrrhizine acid, salt of a saponin glycoside, salt of an acyl carnitine, and sodium salicylate.

G2 2. (Amended) A composition as claimed in claim 1, including said one or more non-hygroscopic additives, said one or more non-hygroscopic additives comprising a carrier that comprises either

(a) particles having a diameter of less than about 10 microns, such that at least 50% of said composition consists of primary particles having a diameter of less than about 10 microns;

or

(b) coarse particles having a diameter of at least 20 microns, such that an ordered mixture is formed between (i) the carrier and (ii) the polypeptide of (A) and the one or more surfactant compounds of (B).

12. (Amended) The composition of claim 1, wherein at least one of said one or more surfactant compounds is a bile salt or derivative thereof, an alkyl glycoside, a cyclodextrin or derivative thereof, or a phospholipid.

G3 13. (Amended) The composition of claim 1, wherein at least one of said one or more surfactant compounds is a salt of a fatty acid.

G4 16. (Amended) The composition of claim 1, wherein at least one of said one or more surfactant compounds is sodium caprate.

G5 ~~Q4-H4~~ 31. (Amended) The composition of claim 1, wherein at least one of said one or more surfactant compounds is a bile salt or derivative thereof.

Add new claims 102-118 as follows.

G6 102. (new) A propellant-free composition comprising (A) a polypeptide and (B) a surfactant compound that (i) has a consistency that permits them to be processed into primary particles having a diameter less than 10 microns, and (ii) enhances the systemic absorption of said polypeptide in the lower respiratory tract of a patient, said composition being in the form of a dry powder suitable for inhalation from a dry powder inhaler device and into the lower respiratory tract, wherein at least 50% of the total mass of (A) and (B) consists of primary particles having a diameter less than or equal to about 10 microns, and wherein the surfactant compound is selected from the group consisting of a salt of a fatty acid, bile salt or derivative thereof, single-chain phospholipid, double-chain phospholipid in which each chain of the double-chain phospholipid is eight or fewer carbon atoms in length, alkyl glycoside, cyclodextrin or derivative thereof, salt of a glycyrrhizine acid, salt of a saponin glycoside, salt of an acyl carnitine, and sodium salicylate.

103. (New) The composition of claim 102, further comprising a non-hygroscopic additive comprising a carrier, which comprises either

(a) particles having a diameter of less than about 10 microns, such that at least 50% of the composition consists of primary particles having a diameter of less than about 10 microns; or

(b) coarse particles having a diameter of at least 20 microns, such that an ordered mixture is formed between (i) the carrier and (ii) the polypeptide of (A) and the surfactant compound of (B).

104. (New) The composition of claim 102, wherein the polypeptide is a polypeptide hormone.

105. (New) The composition of claim 104, wherein the hormone is vasopressin, a biologically active analogue of vasopressin, desmopressin, glucagon, corticotropin (ACTH), gonadotropin (luteinizing hormone, or LHRH), calcitonin, C-peptide of insulin, parathyroid hormone (PTH), human growth hormone (hGH), growth hormone (HG), growth hormone releasing hormone (GHRH), oxytocin, corticotropin releasing hormone (CRH), a biologically active analogue of somatostatin, a biologically active analogue of gonadotropin agonist, human atrial natriuretic peptide (hANP), recombinant human thyroxine releasing hormone (TRHrh), follicle stimulating hormone (FSH), or prolactin.

106. (New) The composition of claim 102, wherein the polypeptide is a growth factor, interleukin, polypeptide vaccine, enzyme, endorphin, glycoprotein, lipoprotein, or polypeptide involved in the blood coagulation cascade, that exerts its pharmacological effect systemically.

107. (New) The composition of claim 102, wherein the polypeptide has a molecular weight of less than 30 kD.

108. (New) The composition of claim 102, wherein the polypeptide has a molecular weight of less than 25 kD.

109. (New) The composition of claim 102, wherein the polypeptide has a molecular weight of less than 20 kD.

110. (New) The composition of claim 102, wherein the polypeptide has a molecular weight of less than 15 kD.

111. (New) The composition of claim 102, wherein the polypeptide has a molecular weight of less than 10 kD.

G6  
Cont.

112. (New) The composition of claim 102, wherein the surfactant compound is a bile salt or derivative thereof, an alkyl glycoside, a cyclodextrin or derivative thereof, or a phospholipid.

113. (New) The composition of claim 102, wherein the surfactant compound is a salt of a fatty acid.

114. (New) The composition of claim 113, wherein the fatty acid has 10-14 carbon atoms.

115. (New) The composition of claim 114, wherein the fatty acid is capric acid.

116. (New) The composition of claim 102, wherein the surfactant compound is sodium caprate.

117. (New) The composition of claim 102, wherein the surfactant compound is a bile salt or derivative thereof.

118. (New) The composition of claim 102, wherein the primary particles are agglomerated.